

Having thus described the invention, we claim:

1. ~~A nozzle assembly for injecting molten plastic into a mold cavity, said nozzle assembly comprising:~~

~~a nozzle housing presenting a passage therethrough for receiving the molten plastic;~~

~~a nozzle having a detachable threaded connection with said housing and a passageway communicating with said passage when the nozzle is connected with the housing, said nozzle having a discharge opening for injecting the molten plastic into the mold cavity;~~

~~internal threads on said nozzle housing extending at a location spaced outwardly from said nozzle when the nozzle is connected to the housing; and~~

~~a sleeve having a threaded connection with said internal threads on the nozzle housing and being adapted to be tightened on said internal threads to lock the nozzle to said nozzle housing.~~

2. A nozzle assembly as set forth in claim 1, wherein said housing presents a bore having a relatively small portion into which said nozzle is threaded and a relatively large portion presenting said internal threads.

3. A nozzle assembly as set forth in claim 2, wherein said bore terminates at a shoulder presented in said housing, said nozzle being threaded into said bore adjacent to said shoulder.

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4. A nozzle assembly as set forth in claim 3, including a second shoulder in said bore and an enlarged flange on said nozzle adjacent to said second shoulder.

5. A nozzle assembly as set forth in claim 2, wherein said sleeve is disposed in said relatively larger portion of said bore between said nozzle and said internal threads on said housing.

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~~6. A nozzle assembly as set forth in claim 1, wherein said housing has a base and a barrel extending from said base, said barrel having an internally threaded bore, said nozzle having a threaded connection with said internally threaded bore to establish said detachable threaded connection.~~

7. A nozzle assembly as set forth in claim 6, wherein said bore terminates at a shoulder presented in said barrel, said nozzle having a shank threaded into said bore adjacent to said shoulder.

8. A nozzle assembly as set forth in claim 1, wherein:
said housing presents a bore having a relatively small portion to which said nozzle has a threaded connection to establish said detachable threaded connection, and a relatively large portion presenting said internal threads;
said housing presents a shoulder in said bore adjacent an intersection between said relatively small and relatively large portions of said bore;
said nozzle has an enlarged flange adjacent said shoulder; and

~~an internally threaded bore in said barrel extending into said end thereof,~~
said bore having threaded first and second portions;

a nozzle having a shank and a nozzle head presenting a discharge opening
for injecting molten plastic into the mold cavity, said shank being externally
threaded and being threaded into said first portion of said bore;

a passageway through said nozzle providing a flow path for the molten
plastic between said passage and said discharge opening; and

an externally threaded sleeve threaded into said second portion of said
bore adjacent to a surface of said shank to secure the nozzle to said housing.

16. A nozzle assembly as set forth in claim 15, wherein said surface of said
shank comprises an enlarged flange on said shank.

17. A nozzle assembly as set forth in claim 15, wherein said first portion of
said bore has a lesser diameter than said second portion.

18. A nozzle assembly as set forth in claim 17, including:

a shoulder in said bore adjacent to an intersection between said first and
second bore portions; and

an enlarged flange on said shank adjacent to said shoulder, said flange
providing said surface of said shank.

said sleeve is located in said relatively large portion of said bore and extends around said nozzle therein.

9. A nozzle assembly as set forth in claim 8, including a gap between said sleeve and nozzle along a majority of the length of said sleeve.

10. A nozzle assembly as set forth in claim 1, including a gap between said sleeve and nozzle along a majority of the length of said sleeve.

11. ~~A nozzle assembly as set forth in claim 8, wherein said sleeve has an end adjacent to said flange.~~

12. A nozzle assembly for injecting molten plastic into a mold cavity in a continuous high volume molding process for molding thin walled parts, said nozzle assembly comprising:

a nozzle housing having a base and a barrel extending from said base, said housing presenting a passage therethrough for receiving the molten plastic;

an end portion of said barrel presenting a bore connecting with said passage;

a nozzle having an externally threaded shank and a nozzle head on said shank, said shank having external threads establishing a threaded connection with said bore to connect said nozzle with said housing;

~~a passageway through said nozzle communicating with said passage when the nozzle is connected with the housing;~~

~~at least one discharge opening in said nozzle head for receiving molten plastic from said passageway and injecting the plastic into the mold cavity; and~~

~~a sleeve threaded into said bore and having a fully tightened condition wherein said sleeve prevents the nozzle from unthreading from the housing.~~

13. A nozzle assembly as set forth in claim 12, wherein said bore terminates at a shoulder presented in said barrel, said shank being threaded into said bore adjacent to said shoulder.

14. A nozzle assembly as set forth in claim 12, wherein:

said bore has a first portion to which said externally threaded shank is threaded to establish said threaded connection;

said bore has a second portion into which said sleeve is threaded; and

said sleeve is adjacent to a selected surface of said shank to secure said nozzle to the housing.

~~15. A nozzle assembly for injecting molten plastic into a mold cavity in a continuous high volume molding process for molding thin walled parts, said nozzle assembly comprising:~~

~~a nozzle housing having a barrel presenting a passage therethrough for receiving the molten plastic, said barrel terminating in an end;~~

19. A nozzle assembly as set forth in claim 18, including a space between said sleeve and shank along a substantial portion of the length of said sleeve.

20. A nozzle assembly as set forth in claim 15, including a space between said sleeve and shank along a substantial portion of the length of said sleeve.

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